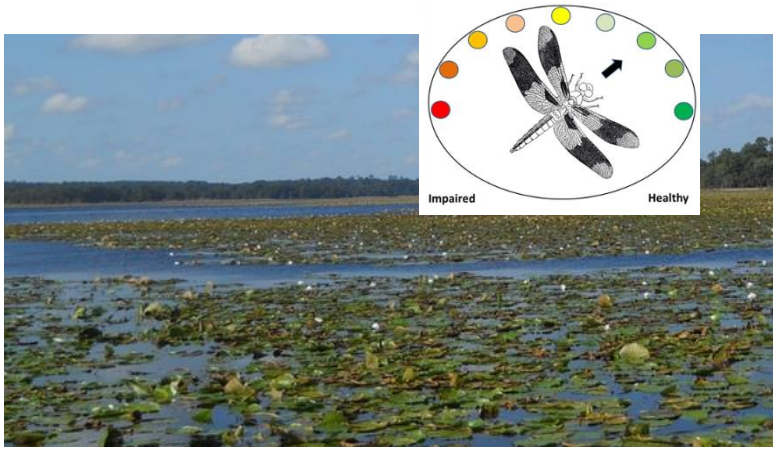
Waterbody: Lake Iamonia



Basin: Lake Iamonia

The largest waterbody in the county, Lake Iamonia is an approximately 5,554 acre, shallow, flat-bottomed, phosphorus-limited, prairie lake located in northern Leon County. Drastic water level fluctuations occur from discharge to the sinkhole and receiving floodwaters from the Ochlockonee River. The most recent example is the substantial inflow from the river during Spring 2013 which refilled the lake. Various control structures have been constructed (and ultimately dismantled) in order to attempt to control water level fluctuations.

Starting in the early 1900's, various management practices, especially water-level stabilization and changes in land use, have led to the overabundance of aquatic plants and the accumulation of organic sediment in Lake Iamonia which impede recreational usage and threaten its fish, wildlife, and ecosystem integrity. One of the largest modifications occurred in 1939, when an earthen dam was constructed to isolate the 20-acre sink basin from the lake. Other modifications continued, with the latest being the removal of two gates that were formerly used to control water level. Prior to their removal (2007), the gates had remained open since 1980, due to the fact that the Northwest Florida Water Management District deemed the dam to be unsafe for impounding water. These latest modifications have been performed in order to protect the public and to allow the lake to have more naturally fluctuating water levels. Water quality monitoring is continuing to be used to evaluate the long term health of the lake.

Background

Healthy, well-balanced lake communities may be maintained with some level of human activity, but excessive human disturbance may result in waterbody degradation. Human stressors may include increased inputs of nutrients, sediments, and/or other contaminants from watershed runoff, adverse hydrologic alterations, undesirable removal of habitat or riparian buffer vegetation, and introduction of nuisance exotic plants and animals. Water quality standards are designed to protect designated uses of the waters of the state (*e.g.,* recreation, aquatic life, fish consumption), and exceedances of these standards are associated with interference of the designated use.

Methods

Surface water, sediment samples, and a Lake Vegetation Survey Index (LVI) were conducted to determine the health of Lake Iamonia and met the requirements of the Florida Department of Environmental Protection (FDEP).

Results

Nutrients

Due to drought, several stations were inaccessible during the sampling period. Sinkhole activity and drought prevented staff from collecting samples in 2012. When viewing tables and figures, the absence of data mean there was not enough data collected (due to lack of water) to fulfill data requirements.

The nutrient thresholds and results are found in Table 1. Due to low water conditions, FDEP data requirements for the Numeric Nutrient Criteria could not be met for 2011 through 2012.

Table1. FDEP's chlorophyll *a*, total nitrogen and phosphorus criteria for lakes applied to Lake Iamonia. Due to low water, the numeric nutrient criteria data requirements could not be calculated for years 2011-2012.

Colored Lakes	Chlorophyll-*a* 20.0 µg/L	Total Nitrogen Threshold 1.27-2.23 mg/L	Total Phosphorus Threshold 0.05-0.16 mg/L
2004	1.7	0.41	0.01
2005	3.9	0.48	0.01
2006	1.8	0.57	0.02
2007	5.0	0.90	0.02
2008	6.1	1.11	0.04
2009	5.8	0.53	0.02
2010	5.6	0.69	0.02
2011-2012	-	-	-
2013	14.52	0.72	0.04
2014	3.26	0.75	0.03

While state numeric nutrient criteria were not exceeded during the period of record, the elevated chlorophyll *a* results in 2013 should be noted.

Dissolved Oxygen (DO)

As Figure 1 shows, Lake Iamonia often did not meet the state DO criteria. This was not unexpected, since all stations are shallow (usually less than 2.0 meters) and are normally covered with vegetation, which prevents rapid water exchange with the larger area of the lake and limits the air/water gas exchange. Plant respiration (samples were often taken in the morning hours) and sediment oxygen demand also contributed to the low DO saturation values. Staff considers this a natural condition for Lake Iamonia.

Fecal Coliforms

Fecal coliform bacteria exceeded the Class III water quality standard of a daily maximum of 800 colonies/100 mL at Station IA6 (800/100 mL) during the June 2013 sampling event and at Station IA7 (1900/100 mL) during the September 2013 event. During the August 2014 sampling event, Stations IA2 and IA3 also had elevated fecal coliform results (620/100 mL and 400/100 mL respectively). In these cases, the probable source of fecal coliforms is wildlife.

Other Parameters

Biological Oxygen Demand (BOD) was elevated (8.9 mg/L) at Station IA2 during the August 2014 sampling event. Staff suspects that the elevated levels may be related to the elevated levels of fecal coliforms found during the same sampling event.

Floral Assessment

The Lake Vegetation Index score for Lake Iamonia was 62, placing the lake's vegetative community in the healthy category.

Sixty four species were found during the survey. The native species fragrant waterlily (*Nymphaea odorata*) was the most dominant species in the lake.

Other native vegetation included fanwort (*Cabomba caroliniana*), maidencane (*Panicum hemitomon*), buttonbush (*Cephalanthus occidentalis*) and red maple (*Acer rubrum*).

Unfortunately, Chinese tallow tree (*Sapium sebiferum*), water hyacinth (*Eichhornia crassipes*), water spangles (*Salvinia minima*), and hydrilla (*Hydrilla verticillata*), all listed as Category I Invasive Exotics by the Florida Exotic Pest Plant Council, were found in Lake Iamonia. Alligator weed (*Alternanthera philoxeroides*) is a Category II Invasive Exotic found in the lake. Additionally, the exotic Indian jointvetch (*Aeschynomene indica*) was also found in and near the lake.

Click here for more information on common exotic and invasive plants in Leon County wetlands and waterbodies.

Click here for more information on the Lake Iamonia LVI.

Fish Consumption Advisory

The Florida Department of Health has issued consumption limits for certain fish in Lake Iamonia due to elevated levels of mercury.

Click here for more information about fish consumption advisories in Leon County.

Conclusions

Based on ongoing sampling, Lake Iamonia met the nutrient thresholds for the East Panhandle Region. DO criteria were not met, but staff considers the low DO results a natural condition. During the August 2014 sampling event, fecal coliform results were elevated for Stations IA2 and IA3. In these cases, the probable source of fecal coliforms is wildlife. Biological Oxygen Demand (BOD) was elevated (8.9 mg/L) at Station IA2 during the August 2014 sampling event. Staff suspects that the elevated levels may be related to the elevated levels of fecal coliforms found during the same sampling event. The Lake Vegetation Index score for Lake Iamonia was 62, placing the lake's vegetative community in the healthy category. Other parameters appeared normal for the area and no other impairments were noted.

Thank you for your interest in maintaining the quality of Leon County's water resources. Please feel free to contact us if you have any questions.

Contact and resources for more information
www.LeonCountyFL.gov/WaterResources

Click here to access the results for all water quality stations sampled in 2014.

Click here for map of watershed – Sample sites IA2, IA4, IA6, IA7, IA8 and LI1B.

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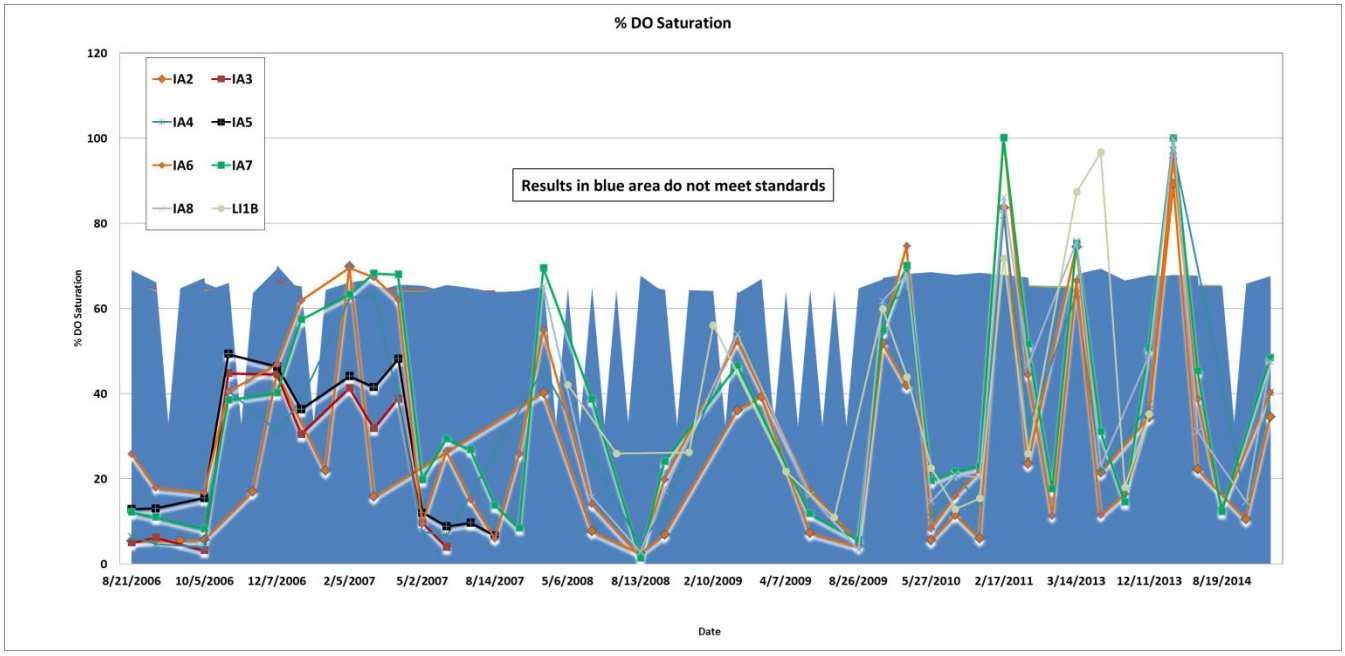

Figure 1. Dissolved Oxygen Percent Saturation results for Lake Iamonia.